Comments	Response

CENTENNIAL RANCHES
652 W. Cromwell, Suite 103
Fresno, CA 93711

Respond to:
William J. Thomas
500 Capitol Mall, Suite 1700
Sacramento CA 95814

VIA EMAIL

MEMORANDUM

TO: Don Jardine, Board Chair
Patricia Kouyoumdjian, Executive Officer
Bruce Warden, Ph.D., Environmental Scientist
Lahontan Regional Water Quality Control Board

FROM: William J. Thomas

DATE: May 30, 2012

RE: COMMENT LETTER RE RENEWAL OF GENERAL CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS FOR GRAZING OPERATIONS IN THE EAST WALKER RIVER WATERSHED OF THE LAHONTAN REGION

I. The Original Waiver Itself Recognized the Extreme Nature of the Basin Plan Objective

When the Lahontan Regional Board was considering its initial agricultural waiver (dated June 13, 2007), it was pointed out to the Board that the Lahontan basin plan contained a very unusual 20 col 100 ml fecal coliform objective. This objective was originally adopted based on Lake Tahoe's unique purity. Therefore, we argued that this standard should be amended or clarified so that in agricultural areas of the region outside of the Tahoe basin the objective should be 200 col/100 ml to match all other areas of the state. Board members expressed an interest in this potential amendment to the basin plan at that time; however, Harold Singer suggested the waiver operate under an interim standard of 200 col FC/100 ml for 10 years, during which it would be determined if 20 col FC/100 ml would be easily achieved and, if not, the interim standard of 200 col/100 ml would be made permanent.

The Lahontan Board went with the interim standard approach, but was so apprehensive as to even the possibility of applying the 20 col FC/100 ml objective, that in the adoption of the waiver they included Finding 4 which recognized the unusual and extreme nature of this objective. The Finding further indicated that the 200 col FC/100 ml would fully protect the beneficial uses of water in the Bridgeport valley, agriculture and recreation uses. The Finding closed by indicating the Board would review and amend the standard, a commitment that Lahontan staff has repeated to the Bridgeport Ranchers throughout the several years we have operated under the waiver; however, the Board has neglected to do so, notwithstanding repeated

Centennial 9: Item I. Please see tentative response to comments **BRO 2** and **Petition 3**.

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requests/suggestions.[1] II. Monitoring Data Demonstrates Improvement Water monitoring data analysis has demonstrated a few overarching lessons over this short six-year monitoring period. These interim conclusions include: 1. Land operators have implemented many best management practices during this period of complete cooperation with the Regional Board staff. 2. The monitoring results have evidenced significantly improved water quality; however: a. The water coming into irrigated lands in the Bridgeport Valley often exceeds the existing basin plan standard, and at times even exceeds the 200 col FC level; b. The periods of water quality concerns have generally narrowed to a couple of mid-summer months and now only involve a couple of the watercourses; and, c. Best practical control practices (i.e., rotational grazing/armor crossings, fence off riparian pastures, cattle management, vegetative buffer zones, control irrigation runoff, etc.) have been employed and have contributed to water quality improvements; however, additional practices or technologies will have to yet be developed by the landowners working with the University to achieve consistant compliance with a reasonable water quality objective. 3. The 20 col FC/100 ml basin plan objective is totally unreasonable, and must be amended for the agricultural areas of the Lahontan region to attain the highest water quality which is reasonable, considering all demands being made on those waters. III. Beneficial Uses on Bridgeport Ranchlands The Bridgeport Valley is entirely private property with the exception of highways and certain in-town and governmental parcels. This includes all the grazing property and the Bridgeport Reservoir. Historical water quality data confirm that the water leaving the private property into the East Walker River at the discharge point of the Bridgeport Reservoir is not only totally within basin plan standards, but never has had evidence of fecal coliform. This entire concern over water quality issue therefore only involves "on ranch" coliform levels involving less than six miles of the watercourses entirely serving agriculture on private property. [1] Finding 4: "Fecal Coliform Water Quality Objective. The Water Board has set the Region-wide water quality objective for fecal coliform at 20 colonies per 100 ml, ten times more stringent than the Federal standard at 200 colonies per 100 ml and any other Region in California, recognizing that waters in the Lahontan Region are generally pristine, and recreation is the major use of these waters. USEPA finds the Federal standard to be protective of water contact recreational beneficial uses. However, during the Truckee workshop and Triennial review of the October 11, 2006 Water Board meeting, the Water Board heard public comments regarding revising the fecal coliform standard to be consistant with Federal standards for areas, such as Bridgeport Valley, where municipal uses have historically been predominately agricultural. If, during the time of this Triennial, the Water Board has sufficient information to propose a Basin Plan Amendment for fecal coliform, Water conditions, milestones, and deadlines may be crafted accordingly." 82226.0000\7415972.1 2	**Centennial 10:** Item II: Water monitoring directly shows fecal coliform concentration. Though implementation of grazing management practices has a positive effect on water quality, the linkage is indirect and often clouded by seasonal effects (please see 2nd tentative response to comments **Centennial 5**). Trend analysis of water quality data collected to date does not yet demonstrate statistically significant improvement. More data is needed to be able to show improving trends, which will be further enhanced as more grazing management practices are implemented. **Centennial 11:** Item III: Please see tentative response to comments **Thomas 4**.
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There is no lawful access onto any of the Bridgeport ranches. Notwithstanding the general basin plan reference to designated uses, there is no municipal (MUN) or contact recreation (REC-1) use of these waters. The only significant beneficial uses in the valley are agriculture (AGR), fish habitat (COLD), and non-contact recreation (REC-2).

IV. The California Water Code Demands Reasonable Water Quality Standards

The California Water Code, Porter-Cologne water quality statutes (section 13241, *et seq.*) demand that when a regional water board establishes a water quality objective it reflect "a reasonable protection of beneficial uses." (Emphasis added.) It is neither reasonable nor prudent to apply an excessively restrictive water quality objective developed to protect beneficial uses of a water body of national importance to the agricultural areas of the Lahontan region. The Bridgeport Valley is the only location in California where this unusually severe standard is being regulatorily imposed on anyone and have it imposed on ranchers.

The Water Code goes on to provide that "it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses." In guiding regional boards in the development of water quality standards, the Water Code directs the regional board to consider if such standards "would reasonably be achieved," and in doing so to take into account "economic considerations." These factors have not been evaluated or reviewed with respect to this fecal coliform objective in the basin plan, which must be thoughtfully considered before imposing the objective on the ranchers of the Bridgeport Valley. This excessively restrictive fecal coliform objective, which is only being imposed upon or hung over the heads of the Bridgeport Valley ranchers, and nowhere else in the state or within the Lahontan Region, would devastate the local economy. (See comments below.)

The requirement for reasonableness and regulatory balance is further compelled by California Water Code sections 13000(c) and 13000(d). It is imperative to include this objective on the Lahontan Regional Board's agenda for a subsidiary workshop in the near term to review a new fecal coliform standard to reflect these statutory provisions and determine an appropriate objective for the agricultural areas throughout the entirety of the region.

V. Economic, Aesthetic and Recreational Impacts as a Result of the Waiver if the 20 col FC/100 ml standard is imposed

Any imposition of the 20 col FC/100 ml standard in the Bridgeport Valley would be the initial application of this improper objective anywhere in the region and enormous impacts will transpire.

There would be no way the historic use and core economic engine of the Bridgeport Valley could continue. Cattle grazing would never be able to continue, which may be the ultimate intention of the Regional staff. However, the Board should clearly understand the collateral impact that will also result to recreation, fishing and other area activities.

In the absence of commercial cattle grazing there will be no spreading of irrigation water; therefore, the valley, after initial spring melt, would only have three green water courses meadows (East Walker, Robinson and Hopkins Creeks) running through dry native pasture forage.

Centennial 12: Item IV: Please see tentative response to comments **Petition 4**.

Centennial 13: Items V and VI: Please see tentative response to comments **Inyo-Mono Ag Com 2 and 3**.

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Because we would have no need for irrigation we would not retain our storage water in Twin Lakes so these water bodies would revert to the 1890 "run of the river" conditions where the lake surface areas would shrink to their pre-dam (1900) sizes and return to their wet meadow status. The water in the valley creeks would be even more free of fecal material, but because the waters flowing into the valley routinely exceed the 20 col fc/100 ml, they would still often exceed the basin standard. Further, because the waters out of the reservoir have never had any fecal, there would be no net water quality gain from these Regional Board actions, which would therefore needlessly economically devastate Mono County, and would merely put more water into Nevada for their use at the sacrifice of California's beneficial use of these California waters. This would additionally violate the Federal Water Decree as administrated by the Federal District Court of Nevada.

Such irresponsible regulatory action could not be sustained by either the State Board or state or federal courts as compliant with either the California Water Code or the controlling federal decree.

VI. Impacts on Conservation Agreements with the State of California

The Centennial Ranches in the Bridgeport Valley have been conserved by recorded agricultural conservation easements. The State of California is totally vested in these conservation easements, which are entirely predicated on the continuation of commercial cattle grazing. If the 20 col fc/100 objective is imposed, continued commercial cattle grazing will be impossible in the valley and on the Centennial Ranches.

The impact of this extreme waiver would therefore be violative of several provisions in each of these conservation deeds as outlined below.

A. Centennial Livestock and Eastern Sierra Land Trust recorded Conservation Easement

1. "Caltrans' funds represent a substantial investment by the People of the State of California in the long-term conservation of ranching and agricultural land, and their valuable scenic and natural resources and values and the protection of these resources and values in perpetuity." (Page 3, section 6)

2. "The Department of Conservation's California Farmland Conservancy Program funds represent a substantial investment by the People of the State of California in the long-term conservation of valuable agricultural land, and the retention of agricultural land in perpetuity." (Pg. 3, sec. 6)

3. "The Farmland Policy Act's purpose is to minimize the unnecessary and irreversible conversion of farmland to nonagricultural uses." (Pg. 3, sec. J)

4. "Grantor grants this Easement to Grantee for valuable consideration, with a percentage of the value donated as a charitable gift, for the purpose of assuring that, under Grantee's perpetual stewardship, the Property's

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agricultural productivity, open space created by working landscapes and the natural balance of the ranchland environment will be conserved and maintained forever, and that uses of the land that are inconsistent with these conservation purposes will be prevented. The parties agree that the current agricultural use of, and improvements to, the Property are consistent with the conservation purposes of this Easement. The Easement's protection of the Property and its Conservation Values will therefore yield a significant public benefit." (Pg. 4, sec. I.)

5. "The conservation purpose of this Easement, pursuant to the governmental policies detailed in the Recitals hereto, and in order to yield a significant public benefit, is to enable the Property to remain in productive agricultural ranching use by preventing uses of the Property that will impair or interfere with the Property's Conservation Values, including its agricultural productivity, open space character as a working landscape, the natural balance of the ranchland environment, its scenic character and its natural habitat values." (Pgs 4, 5, sec. M.1.)

6. "Grantor retains the right to use the Property for agricultural purposes, including commercial cattle operations, or to permit others to use the Property for agricultural purposes, in accordance with applicable law, as long as the agricultural productive capacity and open space character of the Property are not thereby significantly impaired." (Pgs. 4, 5, sec. M.1.)

B. Centennial Ranches and American Land Conservancy recorded Conservation Easement

1. "The Property possesses . . . natural balance of the ranchland environment, all of which are of great importance to Grantor, Grantee and the people of the State of California" (Pg. 2, sec. c)

2. ". . . [C]ommercially viable livestock grazing, which is essential to the purposes of this Conservation Easement, will continue to be conducted on the Property . . ." (Pg. 2, sec. d)

3. ". . . [P]rimary purpose of assuring that the agricultural productivity, open space and scenic qualities created by working landscapes, and the natural balance of the ranchland environment will be conserved, maintained, and protected forever . . ." (Pg. 2, sec. e)

4. "It is the purpose of this Conservation Easement to preserve and protect the Conservation Values by encouraging commercially viable livestock grazing . . ." (Pg. 3, sec. f)

VII. Responses to Draft Waiver Language

The newly proposed tentative waiver runs some 20 pages, with a four-page MRP attachment D and several pages of additional attachments. It is noteworthy that most all of this

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regulatory package would be generally acceptable and reasonable with only a couple of amendments to make it more certain that the unreasonable basin plan objective of 20 col FC/100 ml will soon be taken up for discussion and amendment. Below is a detailed list of those areas needing further amendment. A. Pages 7 and 8, sections 6 and 7. Exceedances are now limited. This section overstates that the valley creeks "continue to exceed[s] fecal coliform above water quality objectives." Many of these creeks are within the 200 col. objective standard all year and some only exceed the standard at one or two monitoring points during only a couple of months per year. As stated in the waiver, of all the watercourses in the valley, the only exceedances were "two at site" (Walker River in Town) and "three on Buckeye Creek at Bridgeport Reservoir." That is the sum total of the issue presently and that is entirely attributable to the commitment of the valley ranchers. B. Page 8, section 8. Monitoring data. The document references SWAMP data from the basin. Please provide copies of all of this data on which you rely to the BRO. Attached as Appendix A is our data summary memo and the six years of collective monitoring data. Our actual data analysis is far more instructive than the "averages" calculations advanced by staff (copy attached). C. Page 9, section 10. Beneficial uses of the valley waters. The only beneficial uses of Bridgeport Valley waters are: 1. Agricultural (AGR) 2. Cold freshwater (COLD) 3. Sportfishing (COMM) 4. Non-contact recreation (REC-2) 5. Spawning (SPWN) There is no municipal (MUN) or contact recreation (REC-1) water in the Bridgeport Valley streams. D. Page 11, ¶ 15 targets 2028 as the period to attain waterway the objective will be at that time. We appreciate the delayed target date, but it is somewhat difficult to provide compliance with a standard which is not yet determined and is entirely "on the menu". E. Page 12, ¶ 19a. The paragraph regarding the attainment should join the two items with an "or" not the "and". F. Page 16, ¶ iii (this section targets the 5-year waiver period - 2012-2017); however, the language of section 15 references the 2018 date. We should be able to amend this 82226.00001\7415972.1 6	**Centennial 14:** Item VII: A—Note that the data cited is for the 2011 season only, which was a high water years (please see 2nd tentative response to comments **Centennial 5**). Post-waiver data (Attachment B to the waiver) show a more wide-spread trend in exceedances in mid-and downstream sites. Table Please see 2nd tentative response to comments **Petition 4**. Item VII: B--SWAMP data has been provided to BRO members by this request. Summary statistics were included in Attachment B for convenience and for purposes of paperwork reduction. . All raw public data is extensive but is available by request from Water Board staff. Item VII: C – see tentative response to comments **Thomas 4**. Item VII: D—see 2nd tentative response to comments **Centennial 6** Item VII: E—change made in proposed version of waiver. Item VII: F-- see 2nd tentative response to comments **Centennial 8**

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basin plan as to the agricultural areas within a couple of years.

VIII. Response to the MRP. Monitoring and Reporting Plan

A. Page 2, Table 1.

The list of sample sites should also include the site at the discharge of the Bridgeport Reservoir into the East Walker River.

B. Page 2, section 3. Ecoregion monitoring.

The language relating to increasing the monitoring to three times per month is unreasonable. The program is already excessively expensive and impacting of our ranch management. The 6-hour window from sample collection to lab delivery is already a problem. Each ranch manager dedicates the morning of sample days to collection and all ranch samples are delivered to our ranch and then one of three ranches has to drive the samples to Reno, therefore eliminating a full day of no ranch management. This cannot happen three times per month. The one per month sampling has been successful. Should the Board want to take their own samples at public sites, they may do so. This is not a research project.

IX. Conclusion

For the reasons set forth above, Centennial Ranches seeks the Regional Board schedule a workshop to consider a region-wide amendment of the fecal objective and to make the above referenced amendments.

Appendix A: monitoring data and summary memo.

cc: Dave Wood
John Lacey
Mark Lacey
[redacted] Landowners

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Appendix A	

Comments	Response

CENTENNIAL RANCHES
652 W. Cromwell, Suite 103
Fresno, CA 93711

Respond to:
William J. Thomas
500 Capitol Mall, Suite 1700
Sacramento CA 95814

VIA EMAIL AND OVERNIGHT MAIL

MEMORANDUM

TO: Bruce Warden, Ph.D., Environmental Scientist
Lahontan Regional Water Quality Control Board
Lauri Kemper, Division Manager

FROM: William J. Thomas

DATE: February 9, 2012

RE: 2006-2011 WATER QUALITY MONITORING

On behalf of the Bridgeport Ranchers Organization, attached please find a year-end chart of the BRO monitoring data. It is an accumulation of six years of data from 2006-2011.

These data are attached as a component of our individual response for the § 13267 letter, and it will also be part of our annual year-end report for our meeting with Lahontan staff next spring. These data are also relevant to the pressing issue of evaluating the appropriateness of the 20 col/100 ml basin standard.

Follows are our initial thoughts on (A) the 20 col/100 ml issue, and (B) our 6-year data set for § 13267 purposes.

A. <u>Need for amendment of the 20 col/100 ml Lahontan basin plan objective.</u>

A major factor in evaluating a basin plan objective is its reasonableness. Forgetting for the moment about the applicability of this extreme purity standard to a grazing meadow, a valid analysis of the applicability of this standard is how it applies to virgin waters coming off the Sierras into the valley. In that regard the 6-year data show that the "into the valley waters" exceed the 20 col/100 ml standard somewhat routinely. Consequently, this standard cannot be sustained.

<u>Swauger Creek</u>: 8 exceedances of the 20 col/100 ml and 4 exceedances of the 200 col/100 ml objective. The high is 71 times the present basin plan standard.

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July 09	117 col/100ml
July 20	160 col/100ml
Aug 09	224 col/100ml
Aug 10	118 col/100ml
Sept 09	304 col/100ml
Sept 10	172 col/100ml
Oct. 09	220 col/100ml
Oct. 10	1410 col/100ml

Buckeye: 9 exceedances of the 20 col/100 ml and 1 over the 200 col/100 ml objective.

June 10	30 col/100ml
July 09	44 col/100ml
July 10	80 col/100ml
Aug 09	83 col/100ml
Aug 10	104 col/100ml
Sept 09	36 col/100ml
Sept 10	28 col/100ml
Oct 09	52 col/100ml
Oct 10	820 col/100ml

Robinson: 7 exceedances of the 20 col/100 ml and 3 over the 200 col/100 ml objective.

May 10	80 col/100ml
July 09	122 col/100ml
Aug 09	496 col/100ml
Aug 10	146 col/100ml
Sept 09	164 col/100ml
Sept 10	360 col/100ml
Oct 10	370 col/100ml

Virginia: 11 exceedances of the 20 col/100 ml and 2 over the 200 col/100 ml objective.

June 09	38 col/100ml
June 10	48 col/100ml
July 07	400 col/100ml
July 09	132 col/100ml
July 10	48 col/100ml
Aug 09	113 col/100ml
Aug 10	44 col/100ml
Sept 09	116 col/100ml
Sept 10	114 col/100ml
Oct. 09	42 col/100ml
Oct. 10	370 col/100ml

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Green: 4 exceedances of the 20 col/100 ml and 1 over the 200 col/100 ml objective.

June 09	2 col/100ml
June 10	30 col/100ml
July 10	24 col/100ml
Oct 10	370 col/100ml

Summary: 4 exceedances of the 20 col/100 ml and 1 of the 200 col/100 ml objective.

June 09	169 col/100ml
June 10	30 col/100ml
July 10	124 col/100ml
Oct 10	370 col/100ml

On balance, over six years of seasonal monitoring the waters above the Bridgeport Valley and irrigated agriculture exceed the present basin plan objective 43 times and even exceed the 200 col/100 ml objective 12 times. These exceedances mostly occur in the 5 month (June—October) time period. This is the same period that cattle are in the valley.

This presents a compelling challenge to the present basin plan objective for the agricultural areas of the region and demands an appropriate amendment. It is totally improper for the region to maintain this present objective in the basin plan. If the Lahontan Board expects the continued cooperation of the Bridgeport Ranchers, it is reasonable that the Board do its appropriate work and amend this objective.

B. 6-Year Data Analysis in Response to the Section 13267 Investigation Report.

1. Swauger Creek

This data set compels caution in analysis as the livestock use has remarkably changed (cattle pair, sheep, cattle yearlings) over the test period, and the ownership and management have also changed and markedly improved.

There appear to be no issues in any year until June. In June 2009 and again in June 2010, the readings off the ranch significantly exceeded those coming onto the ranch (2009: 12 in, 412 out; 2010: 4 in, 990 out). Those are alarming increases, however, they totally appear themselves in July (2009: 117 in, 120 out; 2010: 150 in, 190 out). These favorable data hold through August, September and October 2009 and 2010 (August 2009: 224 in, 88 out; August 2010: 118 in, 88 out; September 2009: 384 in, 72 out; October 2010: 1410 in, 820 out). On balance, the ranch was properly managed and generally cleaned up water once we got into July, but it certainly needs some additional attention in June.

On balance Swauger Creek is in pretty good shape, but more attention is merited.

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2. Buckeye Creek

When we commenced monitoring in 2006 and 2007, Buckeye started exceeding the 200 col objective at US 396 by mid-May, and Buckeye at the reservoir significantly exceeded the objective in 2006 and 2007 in September and October.

Moving to 2011, Buckeye did not exceed the standard until mid-June (330 at US 395), but it was only 28 at US 395, and 100 at the reservoir in July. It was only 74 at US 395, and 420 at the reservoir in August, and by September on all waters were within standards.

Those data are very promising as it not only shows marked improvement, but the waters are nearly within standards. If Centennial can duplicate its 2011 efforts, concludes some planned runoff controls, fences additional portions of Buckeye and commences its wetland and ponding project, the waters by US 395 will meet the 200 col/100 ml objectives.

If Centennial and Chemberg can identify and implement protective strategies between US 395 and the reservoir over the next three years, Buckeye throughout the valley will be a significant success story. It also must be remembered that Buckeye comes into the valley over the objective in mid to late summer.

3. Robinson Creek

In 2006 Robinson exceeded the standard commencing in May, but by 2010 and 2011 the May waters were fine at both US 395 and the reservoir. In 2009 and 2010 Robinson waters were surprisingly bad in summer, but in 2011 they were within the 200 col standard at both US 395 and the reservoir.

Centennial hopes to duplicate its management efforts to maintain those results, and will be assessing the efforts being planned for Buckeye involving wetlands and settling basins to determine if some of that may be transferable to Robinson Creek.

4. Virginia, Green and Summers Creeks

Virginia and Green Creeks have only had a couple of exceedances over the years, and offer up distant problems. Regrettably, they are sources entering the valley, all efforts to further reduce those contributions would be merited.

Summers Creek has offered some higher fecal counts in some mid-summer months, but in 2011 it was also within the objective.

5. East Walker River

The Walker River picks up not just the Green, Virginia and Summers waters, but considerable runoff waters from the Rickey Ditch and other valley waters. In some years, this has raised levels above the objective when it reached town. The E. Walker also generally picks up additional fecals passing through town.

In 2011, however, it modestly exceeded the objective only twice, once in

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July (250) and once in September (440). Management efforts have shown to be effective in 2011 and, hopefully, quality will maintain or improve next year. Again, Centennial is going to evaluate the efforts that are planned on Buckeye in 2012-2014 relating to settling ponds and wetlands for possible incorporation on some of the Walker tributary drainage. 82226.0001\7415972.1	

BRO - Public Data [2006 - 2011]
Water Quality Monitoring Data By Station

LOCATIONS

0	Swauger Creek above Huntoon Valley
1	Swauger Creek
2	Buckeye above ranch
3	Robinson above ranch
4	Virginia Creek
5	Green Creek
6	Summers Creek
7	Buckeye 395
8	Buckeye Reservoir
9	Robinson 395
10	Robinson Reservoir
11	Walker at town
12	Walker below town

	Sample Number												
Sample Date	0	1	2	3	4	5	6	7	8	9	10	11	12
11-Apr-06	2	6	<2	<2	22	<2	<2	<2	<2	<2	<2	10	
10-Apr-08	<2	2	<2	<2	<2	28	<2	n/a	16	2	<2	<2	<2
6-Apr-09	Fecal 0	Fecal 20	Fecal 4	Fecal 0	Fecal 7	Fecal 1	Fecal 0	Fecal 2	Fecal 8	Fecal 0	Fecal 0	Fecal 3	Fecal n/a
	Ecoli 0	Ecoli 7	Ecoli 4	Ecoli 0	Ecoli 2	Ecoli 1	Ecoli 1	Ecoli 1	Ecoli 1	Ecoli 1	Ecoli 0	Ecoli 1	Ecoli n/a
12-Apr-10	Fecal 1	Fecal n/a	Fecal 3	Fecal 1	Fecal 17	Fecal 1	Fecal 2	Fecal 3	Fecal 3	Fecal 15	Fecal 1	Fecal 5	Fecal 6a
	Ecoli 2	Ecoli n/a	Ecoli 4	Ecoli 0	Ecoli 15	Ecoli 1	Ecoli 1	Ecoli 2	Ecoli 2	Ecoli 10	Ecoli 1	Ecoli 4	Ecoli 4
8-Apr-11	<2	2	<2	<2	<2	6	2	<2	4	2	2	2	2
1-May-06	<2	2	<2	<2	20	2	<2	2	8	10	28	20	
15-May-06	4	8	4	4	24	4	12	360	380	400	300	138	
10-May-07	2	8	<2	<2	20	8	6	960	110	18	14	4	
7-May-08	<2	<2	<2	<2	2	<2	8	2	4	<2	<2	72	28
4-May-09	Fecal 1	Fecal 38	Fecal 6	Fecal 0	Fecal 6	Fecal 2	Fecal 1	Fecal 11	Fecal 34	Fecal 109	Fecal 87	Fecal 308	Fecal 414
	Ecoli 1	Ecoli 28	Ecoli 4	Ecoli 1	Ecoli 3	Ecoli 0	Ecoli 0	Ecoli 7	Ecoli 33	Ecoli 69	Ecoli 51	Ecoli 264	Ecoli 345
3-May-10	Fecal 1	Fecal 16	Fecal 9	Fecal 50	Fecal 7	Fecal 9	Fecal 5	Fecal 24	Fecal 13	Fecal 22	Fecal 15	Fecal 16	Fecal 14
	Ecoli 0	Ecoli 2	Ecoli 4	Ecoli 9	Ecoli 4	Ecoli 4	Ecoli 1	Ecoli 19	Ecoli 9	Ecoli 20	Ecoli 17	Ecoli 14	Ecoli 13
5-May-11	<2	6	n/a	<2	<2	<2	<2	<2	2	<2	2	<2	<2
5-Jun-06	6	44	28	2	52	20	66	700	720	740	640	640	
19-Jun-06	12	82	14	6	34	50	36	260	420	92	140	720	
11-Jun-07	2	88	<2	<2	8	18	310	230	210	270	220	320	
6-Jun-08	<2	190	<2	<2	12	2	18	180	220	260	150	290	240
1-Jun-09	Fecal 12	Fecal 412	Fecal 12	Fecal 6	Fecal 28	Fecal 21	Fecal 168	Fecal 144	Fecal 188	Fecal 304	Fecal 600	Fecal 200	Fecal 400
	Ecoli 28	Ecoli 348	Ecoli 18	Ecoli 1	Ecoli 32	Ecoli 14	Ecoli 128	Ecoli 188	Ecoli 152	Ecoli 280	Ecoli 500	Ecoli 300	Ecoli 400
7-Jun-10	Fecal 4	Fecal 990	Fecal 30	Fecal 4	Fecal 40	Fecal 30	Fecal 190	Fecal 1740	Fecal 2210	Fecal 1830	Fecal 2680	Fecal 1480	Fecal 1830
	Ecoli 3	Ecoli 690	Ecoli 20	Ecoli 4	Ecoli 10	Ecoli 24	Ecoli 84	Ecoli 1150	Ecoli 1400	Ecoli 1660	Ecoli 2270	Ecoli 890	Ecoli 1030
13-Jun-11	<2	450	<2	<2	8	6	10	330	520	24	150	140	160
10-Jul-06	<2	<2	<2	<2	<2	<2	2	18	4	54	56	46	
17-Jul-06	68	70	18	8	78	16	140	<2	26	54	160	198	
12-Jul-07	120	260	64	18	400	6	92	420	210	740	390	60	
17-Jul-08	8	300	8	13	130	30	50	300	1600	280	200	300	360
6-Jul-09	Fecal 117	Fecal 120	Fecal 44	Fecal 122	Fecal 150	Fecal 4	Fecal 130	Fecal 1148	Fecal 784	Fecal 540	Fecal 440	Fecal 400	Fecal 400
	Ecoli 48	Ecoli 116	Ecoli 35	Ecoli 3	Ecoli 50	Ecoli 1	Ecoli 70	Ecoli 708	Ecoli 420	Ecoli 408	Ecoli 380	Ecolu 100	Ecoli 500
6-Jul-10	Fecal 160	Fecal 190	Fecal 80	Fecal 16	Fecal 40	Fecal 24	Fecal 36	Fecal 136	Fecal 312	Fecal 276	Fecal 360	Fecal 400	Fecal 1200
	Ecoli 170	Ecoli 120	Ecoli 80	Ecoli 4	Ecoli 40	Ecoli 12	Ecoli 20	Ecoli 80	Ecoli 172	Ecoli 204	Ecoli 276	Ecolu 400	Ecoli 300

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Response

Sample Date	0	1	2	3	4	5	6	7	8	9	10	11	12
18-Jul-11	8	870	10	<2	20	8	110	28	100	130	50	250	160
7-Aug-06	90	130	36	6	missing	missing	missing	160	220	60	74	122	
21-Aug-06	120	130	58	8	54	16	120	210	580	360	120	220	
9-Aug-07	58	290	4	8	60	4	42	680	130	270	420	50	
6-Aug-08	20	100	4	2	20	<2	10	1600	80	200	180	40	<20
3-Aug-09	Fecal 224	Fecal 88	Fecal 83	Fecal 496	Fecal 113	Fecal 3	Fecal 312	Fecal 508	Fecal 900	Fecal 1500	Fecal 372	Fecal 144	Fecal 212
	Ecoli 92	Ecoli 44	Ecoli 61	Ecoli 12	Ecoli 51	Ecoli 3	Ecoli 156	Ecoli 352	Ecoli 100	Ecoli 2400	Ecoli 324	Ecoli 124	Ecoli 124
2-Aug-10	Fecal 118	Fecal 88	Fecal 104	Fecal 146	Fecal 44	Fecal 10	Fecal 990	Fecal 168	Fecal 380	Fecal 330	Fecal 460	Fecal 330	Fecal 360
	Ecoli 46	Ecoli 88	Ecoli 56	Ecoli 12	Ecoli 16	Ecoli 6	Ecoli 400	Ecoli 96	Ecoli 240	Ecoli 210	Ecoli 110	Ecoli 190	Ecoli 150
19-Aug-11	46	130	84	8	28	6	14	74	420	240	120	70	86
7-Sep-06	82	102	94	44	40	106	32	122	480	122	102	500	
18-Sep-06	166	48	18	10	missing	missing	missing	240	720	240	220	480	
13-Sep-07	12	18	22	6	26	2	16	190	260	220	520	640	
12-Sep-08	110	34	10	4	56	6	80	1400	240	170	76	240	460
8-Sep-09	Fecal 384	Fecal 72	Fecal 36	Fecal 164	Fecal 116	Fecal 4	Fecal 376	Fecal 240	Fecal 370	Fecal 540	Fecal 112	Fecal 248	Fecal 180
	Ecoli 120	Ecoli 46	Ecoli 10	Ecoli 4	Ecoli 22	Ecoli 8	Ecoli 172	Ecoli 132	Ecoli 340	Ecoli 220	Ecoli 92	Ecoli 160	Ecoli 100
13-Sep-10	Fecal 172	Fecal 200	Fecal 20	Fecal 260	Fecal 114	Fecal 4	Fecal 220	Fecal 424	Fecal 1800	Fecal 290	Fecal 560	Fecal 280	Fecal 360
	Ecoli 62	Ecoli 128	Ecoli 18	Ecoli 0	Ecoli 30	Ecoli 4	Ecoli 130	Ecoli 328	Ecoli 1260	Ecoli 200	Ecoli 430	Ecoli 120	Ecoli 170
16-Sep-11	28	230	50	12	12	2	8	96	240	200	180	440	360
2-Oct-06	<2	54	18	30	8	300	60	38	380	200	100	320	
18-Oct-06	2	92	8	<2	640	2	<2	8	100	108	12	46	
5-Oct-07	220	30	4	<2	6	12	4	38	260	130	48	480	
10-Oct-08	6	68	10	<2	8	4	10	20	90	82	64	28	48
5-Oct-09	Fecal 56	Fecal 56	Fecal 52	Fecal 92	Fecal 42	Fecal 4	Fecal 80	Fecal 28	Fecal 180	Fecal 88	Fecal 184	Fecal 156	Fecal 280
	Ecoli 28	Ecoli 18	Ecoli 40	Ecoli 2	Ecoli 14	Ecoli 6	Ecoli 47	Ecoli 8	Ecoli 80	Ecoli 44	Ecoli 160	Ecoli 184	Ecoli 108
4-Oct-10	Fecal 1410	Fecal 1170	Fecal 820	Fecal 370	Fecal 392	Fecal 370	Fecal 1220	Fecal 6600	Fecal 10000	Fecal 30000	Fecal 8800	Fecal 2200	Fecal 1780
	Ecoli 1040	Ecoli 860	Ecoli 460	Ecoli 100	Ecoli 276	Ecoli 350	Ecoli 730	Ecoli 4700	Ecoli 8300	Ecoli 16500	Ecoli 7300	Ecoli 1820	Ecoli 1480
00-Oct-11	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
13-Nov-06	<2	18	<2	<2	10	<2	42	<2	12	<2	4	<2	
9-Nov-07	2	2	20	<2	16	<2	<2	30	38	76	54	120	
6-Nov-08	4	20	70	<2	4	4	4	64	92	36	26	110	92
2-Nov-09	Fecal 6	Fecal 16	Fecal 10	Fecal 6	Fecal 14	Fecal 7	Fecal 0	Fecal 22	Fecal 40	Fecal 35	Fecal 76	Fecal 60	Fecal 100
	Ecoli 2	Ecoli 8	Ecoli 6	Ecoli 2	Ecoli 4	Ecoli 2	Ecoli 0	Ecoli 16	Ecoli 90	Ecoli 30	Ecoli 24	Ecoli 28	Ecoli 88
00-Nov-10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4-Nov-11	<2	48	<2	<2	<2	2	22	6	42	56	26	34	54

Comments

Response